**STATE OF GEORGIA**

# TMDL IMPLEMENTATION PLAN

**OCMULGEE RIVER BASIN**

## MERCURY AND FISH CONSUMPTION GUIDELINES DUE TO MERCURY

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TMDL Implementation Plans are platforms for establishing a course of actions to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies.

**This Implementation Plan is applicable to the following segments in the Ocmulgee River Basin:**

| Impaired Waterbody | Location | Miles/Area Impacted |
|---|---|---|
| Big Haynes Reservoir | Rockdale County | 650 (acres) |
| Ocmulgee River | Cedar Creek (Pulaski/Wilcox County Line) to House Creek | 36 |

# MERCURY AND FISH CONSUMPTION GUIDELINES DUE TO MERCURY

## INTRODUCTION

The Environmental Protection Agency has developed total maximum daily load (TMDL) documents for Big Haynes Reservoir in Rockdale County and Ocmulgee River (Cedar Creek to House Creek) on the Pulaski / Wilcox County Line. Big Haynes Reservoir and the Ocmulgee River segment are on the State of Georgia's 2000 Section 303(d) list of impaired waters because mercury in certain species of fish tissue exceeded the Georgia Department of Natural Resources (GDNR) Fish Consumption Guidelines. GDNR's Fish Consumption Guidelines are established using a "risked-based" approach based on conservative assumptions to determine whether an advisory is issued for a particular fish species in a particular waterbody.

The State of Georgia provided a letter to EPA in July 2001, which provides a numeric interpretation of the Georgia narrative water quality standard for mercury (USEPA, 2000), and that numeric interpretation states that fish tissue is not to exceed 0.3 mg/kg, is consistent with EPA's recently adopted guidance value for methylmercury (USEPA 2000). The same letter also provides a State methodology for determining when a waterbody is impaired and is to be listed on the State's future Section 303 (d) list, as well as a methodology for calculation the site-specific allowable water column concentration to protect the general population from the accumulation of mercury in fish tissue. Using the State's methodology provided in the July 2001 letter and EPA's recently collected site-specific data for mercury for the Big Haynes Reservoir and the Ocmulgee River segment, it has been determined that both Big Haynes Reservoir and the Ocmulgee River are attaining the applicable water quality standard for mercury and a TMDL is not needed. However, due to the requirement by the Consent Decree in the case of Sierra Club v. EPA, 1:94-cv-2501-MHS (N.D. Ga.) that the State or EPA develop TMDLs for all waterbodies on the State of Georgia's current 303(d) list. EPA established TMDLs for Big Haynes Reservoir and the Ocumulgee River segment listed. In the absence of the Consent Decree, EPA would not have established these TMDLs because the waters no longer need the TMDL.

Georgia submitted a supplement to its 2000 303(d) List to EPA for review on June 8, 2001. This supplement, approved by EPA in June 2001, was meant to update the State's List for the Oconee, Ocmulgee and Altamaha River Basins based on the State's most recent water quality monitoring data. However, the EPA data and the State's recent interpretation of its narrative standard for mercury were not available for consideration before the State's supplemental list was submitted and approved. Therefore, the Big Haynes Reservoir and Ocmulgee River remains on the Section 303(d) list despite evidence that they are attaining the applicable water quality standard for mercury.

## DISCUSSION OF POLLUTANT

Mercury is a toxic metal and a naturally occurring element found throughout the environment. It is commonly seen as a shiny, silver-white, odorless liquid metal. According to EPA, mercury is one of the persistent, bioaccumulative, and toxic, or PBT, pollutants. Human activity can cause a release of mercury increasing the presence of this toxic element in the atmosphere. The three forms of mercury are methyl, elemental, and inorganic. The elemental or inorganic forms are usually the forms released to the environment. Methylmercury is an organic form that is more toxic and bioaccumulates in the food chain.

The main concern is the exposure to mercury of the developing fetus. Because its brain is rapidly developing, the fetus is more sensitive, and women of childbearing age are at the greatest risk. Human exposure to mercury occurs through the consumption of contaminated fish, as mercury concentrations in the air are usually low. Other groups at risk are subsistence fishermen and some Native American populations.

## POLLUTANT SOURCES

EPA attributes 99% of the mercury in our water to atmospheric deposition. Only 1% is said to come from point sources. In water, the mercury is changed by biological processes to methylmercury which bioaccumulates in fish. The largest sources of mercury air emissions are:

- Coal-fired electrical utilities
- Municipal waste combustors
- Medical waste incinerators
- Hazardous waste combustors

Other sources of mercury include manufacturing activities, mining, and wastewater effluents.

There is not much data on mercury concentration in wastewater effluents. These point sources are listed in the TMDLs as having the potential to discharge mercury but, until recently, the method for analyzing mercury was not sensitive enough to measure the low trace levels found in effluents.

## SOLVING THE PROBLEM

Mercury coming from power plant stacks and other sources is carried by the wind and can travel for great distances depending on atmospheric conditions. This is a global problem and EPA is working with other countries to limit mercury releases worldwide. EPA will propose limits on mercury emissions from coal and oil fired power plants by December 15, 2003 and issue final regulations by December 15, 2004. According to

the TMDLs for fish contaminated with mercury, "EPA expects that a combination of ongoing and future activities under the Clean Air Act will achieve reductions in air deposition of mercury that will enable achievement of water quality standards."

EPA finalized rules for municipal waste combustors and hospital incinerators and there was almost 90% reduction in mercury emissions from 1995 to 2000 from these sources. A voluntary agreement has been achieved between the American Hospital Association and EPA to eliminate mercury waste by 2005 from hospitals.

Industrial demand for mercury declined approximately 75% from 1988 to 1996. For example, mercury is no longer added to paint or pesticides and is used less in batteries.

## PLAN FOR IMPLEMENTATION OF TMDL

NPDES major facilities on a 303(d) listed stream for mercury or fish contaminated with mercury will have a monitoring requirement put in the permit. The permittee will characterize the effluent and the source of drinking water in the area for mercury concentrations through this monitoring. If the mercury concentration in the effluent is greater than the water quality target mentioned in the TMDL or greater than the mercury concentration in the source of drinking water, then the permittee will have to develop and implement a mercury minimization plan. This mercury minimization plan will involve source identification and then the reduction and elimination of mercury from the effluent.

Air point sources will continue to reduce emissions of mercury through implementation of the Clean Air Act. EPA and the regulated community will improve the mercury air emissions inventory. EPA will revise the mercury air deposition model to get better characterizations of the sources of mercury.

## MONITORING PLAN

EPA and EPD will continue to collect ambient data on mercury concentrations in water, sediments, and fish.

## EDUCATION/OUTREACH ACTIVITIES

The Environmental Protection Division will continue to provide guidance and education to the public on all water quality issues through outreach by the Water Protection Branch. The Pollution Prevention Assistance Division is another excellent resource for this outreach. When necessary, the Department of Natural Resources will issue fish consumption guidelines. These guidelines are updated annually, identify specific stream segments where there is a problem, and list all known species of fish with mercury contamination and how often they may be consumed.

## REFERENCES

Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03, Water Use Classifications and Water Quality Standards, Revised December 2002.

GAEPD, 2002. Total Maximum Daily Load for Total Mercury in Big Haynes Reservoir, Georgia. February 2002.

GAEPD, 2002. Total Maximum Daily Load for Total Mercury in Jackson Lake and Ocmulgee River, Georgia. February 2002.